

REMARKS

The Office Action mailed April 25, 2006, has been received and reviewed. Claims 7, 8, 14, 15 and 20 are currently pending in the application. Claims 7, 8, 14, 15 and 20 stand rejected. Applicant has amended claims 7 and 14, and respectfully requests reconsideration of the application as amended herein.

Claim Objections

Claims 7 and 14 are objected to due to informalities in the claim language. Appropriate correction has been made.

35 U.S.C. § 112 Claim Rejections

Claims 7, 8, 14, 15 and 20 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Applicant respectfully traverses this rejection, as hereinafter set forth.

The Examiner asserts that “the use of ‘consisting of’ excludes curing agents, a necessary ingredient in order to cure the present inventive composition.” Office Action mailed April 25, 2006, at page 3. In regards to this rejection, claims 7 and 14 have been amended herein to recite “at least one curing agent.” As the claims now recite a curing agent, the applicant respectfully submits that the claims are now believed to recite every essential element necessary to form an insulation material according to the present invention. As such, the applicant respectfully submits that the claims rejections under 35 U.S.C. § 112, first paragraph have been overcome. Consequently, the applicant respectfully requests the withdrawal of the rejections of claims 7 and 14 under 35 U.S.C. § 112, first paragraph, and reconsideration of same.

Further, the applicant respectfully notes that as claims 8, 15, and 20 depend, either directly or indirectly, from claims 7 and 14. As such, the applicant respectfully submits that claims 6, 15, and 20 are at least allowable as depending, either directly or indirectly from an allowable base claim. Consequently, applicant respectfully requests the withdrawal of the

rejections of claims 8, 15, and 20 under 35 U.S.C. § 112, first paragraph, and reconsideration of same.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 4,501,841 to Herring in view of U.S. Patent No. 4,726,987 to Trask et al.

Claims 7, 8, 14, 15 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring (U.S. Patent No. 4,501,841) (hereinafter “the ‘841 patent”) in view of Trask et al. (U.S. Patent No. 4,726,987) (herein after “Trask”). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The obviousness rejection of claims 7, 8, 14, 15, and 20 are believed to be improper because the cited references do not teach or suggest all of the claim elements and do not provide a motivation to combine the references to produce the claimed invention.

The Examiner, at page 4 of the Office Action mailed April 25, 2006, asserts that the ‘841 patent discloses elastomeric insulating materials for rocket motors comprising crosslinkable elastomeric polymers such as EPDM; polyaramide pulp, i.e., polymeric organic filler, which is used to advantageously promote the formation of a strong adhering char during propellant burning; organic and inorganic flame retardants; and a peroxy crosslinking agent. The Examiner further asserts that a method of insulating rocket motors is provided by the ‘841 patent and that, while the ‘841 patent does not teach a cure accelerator or a cure activator, it is considered that these additives are quite common in crosslinking and would be utilized by one of ordinary skill

in the art. *Id.* Last, the Examiner notes that, the ‘841 patent does not disclose any other polymeric filler other than polyaramide fibers as a char-former, but that the ‘841 patent does not exclude the substitution or the additional use of other similar materials.

Applicant notes that the ‘841 patent teaches that “the non-asbestos elastomeric insulating material of this invention comprises . . . between about 5 and 75 parts by weight inorganic particulate such as silica.” The ‘841 patent at column 2, lines 15-22.

With regard to Trask, the Examiner asserts that Trask teaches that aramid fibers like those utilized in the ‘841 patent are advantageous for char formations that act as a thermal barrier, that polyphenylene sulfide is also a char former with outstanding chemical resistance, thermal stability, and fire resistance like the polyimides and that halogenated polymers like polyvinylchloride are advantageous in fire-retardant applications due to its two-stage degradative process. *Id.*

Applicant believes that the cited references do not teach or suggest all of the limitations of independent claim 7, as amended herein, because neither reference individually, or when combined, teaches or suggests an “insulation material consisting of a low-density ethylene propylene diene monomer polymer, at least one flame-retardant, at least one curing agent, an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide, melamine, and a homopolymer of vinylidene chloride, and at least one additive selected from the group consisting of at least one antioxidant, at least one cure accelerator, at least one cure activator, at least one tackifier, and at least one plasticizer.” Instead, the elastomeric lining materials of the ‘841 patent are believed to include a crosslinked elastomer polymer, polyaramide pulp fibers, *and inorganic particulates*. The ‘841 patent at column 2, lines 15-22. As the ‘841 patent teaches the use of inorganic particulates, the ‘841 patent does not teach or suggest a material that “consists of” the components recited in claim 7. Further, Trask does not teach or suggest the removal or exclusion of the inorganic particulates. As such, the references when combined do not teach or suggest a material that “consists of” the components recited in claim 7.

In addition, the cited references do not provide a motivation to combine to produce the claimed invention. To provide a motivation or suggestion to combine, the prior art or the knowledge of a person of ordinary skill in the art must “suggest the desirability of the

combination” or provide “an objective reason to combine the teachings of the references.” M.P.E.P. § 2143.01. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *Id.* (emphasis in original). It is fundamental that obviousness rejections must be based on objective evidence of record. *In re Lee*, 277 F.3d 1338, 1342-1343 (Fed.Cir. 2002). The Examiner “cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.” *Id.* at 1345.

Applicant respectfully submits that nothing in the ‘841 patent and Trask, when combined, suggests the desirability of, or provides an objective reason for, combining the references. As acknowledged by the Examiner, the ‘841 patent does not teach or suggest the organic fillers recited in claim 7. Office Action, mailed April 25, 2006, at page 4. Therefore, the Examiner relies on Trask as teaching this element and states that “it would have been obvious to one of ordinary skill in the art to utilize a polyphenylene sulfide or polyvinyl chloride as a char-former in the rocket motor insulation of the ‘841 patent and thereby arrive at the presently claimed invention.” *Id.* However, this reasoning by the Examiner is conclusory and is not based on objective evidence of record because nothing in the ‘841 patent suggests the desirability of, or provides an objective reason for, using the recited organic fillers in its elastomeric lining material. Rather, the ‘841 patent only teaches using polyaramide pulp fibers in its elastomeric lining material. Trask also does not suggest the desirability of, or provide an objective reason for, using the recited organic fillers in an insulation material. While Trask teaches that polyphenylene sulfide is a flame retardant, Trask also teaches that polyphenylene sulfide and the other flame retardants do not provide ideal properties and must be combined as separate layers in a panel. Trask at column 3, lines 26-54. As such, it is believed that neither the ‘841 patent or Trask suggests the desirability of, or provides an objective reason for, using organic filler materials of claim 7 in an insulation material for a rocket motor.

As the cited references do not teach or suggest all of the limitations of claim 7 and do not provide a motivation to combine to produce the claimed invention, the applicant respectfully asserts that the obviousness rejection is improper and should be withdrawn.

Claim 8 is allowable, *inter alia*, as depending from an allowable base claim.

As independent claim 14, as amended herein, recites substantially the same limitations as have been discussed hereinabove with respect to claim 7, claim 14 is allowable for substantially the same reasons as claim 7.

Claim 15 and 20 are allowable, *inter alia*, as depending from an allowable base claim.

Obviousness Rejection Based on U.S. Patent No. 4,501,841 to Herring in view of U.S. Patent No. 4,726,987 to Trask et al. and further in view of U.S. Patent No. 4,878,431 to Herring

Claims 7, 8, 14, 15 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring (U.S. Patent No. 4,501,841) in view of Trask et al. (U.S. Patent No. 4,726,987) and further in view of Herring (U.S. Patent No. 4,878,431) (hereinafter “the ‘431 patent”). Applicant respectfully traverses this rejection, as hereinafter set forth.

The asserted teachings of the ‘841 patent and Trask are as previously described.

The Examiner, at page 5 of the Office Action mailed April 25, 2006, asserts that the ‘431 patent discloses elastomeric insulating materials for rocket motors and teaches the suitability and desirability of tackifiers and plasticizers to enhance the composition.

Applicant notes that the ‘431 patent discloses an elastomeric lining material including an elastomeric polymer that is substantially saturated and an elastomeric polymer that is substantially unsaturated. The ‘431 patent at column 2, lines 24-27. The substantially saturated elastomeric polymer includes polychloroprene, chlorosulfonated polyethylene, polyurethane, and ethylene propylene diene monomer (“EPDM”) and the substantially unsaturated elastomeric polymer is a polyisoprene. *Id.* at column 3, lines 54-57 and column 4, lines 25-28. The elastomeric lining material also includes organic or inorganic particulates. *Id.* at column 2, lines 27-35. The organic or inorganic particulates include hydrated silica, mica, quartz, or chlorinated hydrocarbon compounds. *Id.* at column 4, lines 34-46.

Applicant believes that the cited references do not teach or suggest all of the limitations of independent claim 7, as amended herein, because the references either individually, or when combined, neither teach nor suggest an “insulation material consisting of a low-density ethylene propylene diene monomer polymer, at least one flame-retardant, at least one curing agent, an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide,

melamine, and a homopolymer of vinylidene chloride, and at least one additive selected from the group consisting of at least one antioxidant, at least one cure accelerator, at least one cure activator, at least one tackifier, and at least one plasticizer.” Instead, the elastomeric lining materials of the ‘841 patent are believed to include a crosslinked elastomer polymer, polyaramide pulp fibers, *and inorganic particulates*. The ‘841 patent at column 2, lines 15-22. As the ‘841 patent teaches the use of inorganic particulates, the ‘841 patent does not teach or suggest a material that “consists of” the components recited in claim 7. Further, it is believed that neither Trask nor the ‘431 patent teach or suggest the removal or exclusion of the inorganic particulates. As such, the references when combined do not teach or suggest a material that “consists of” the components recited in claim 7.

The cited references also do not provide a motivation to combine to produce the claimed invention. Applicant respectfully submits that nothing in the ‘841 patent, Trask, and the ‘431 patent, when combined, suggests the desirability of, or provides an objective reason for, combining the references. As acknowledged by the Examiner, the ‘841 patent does not teach or suggest the organic fillers recited in claim 7. Office Action, mailed April 25, 2006, at page 4. Therefore, the Examiner relies on Trask as teaching this element and states that “it would have been obvious to one of ordinary skill in the art to utilize a polyphenylene sulfide or polyvinyl chloride as a char-former in the rocket motor insulation of the ‘841 patent and thereby arrive at the presently claimed invention.” *Id.* However, this reasoning by the Examiner is conclusory and is not based on objective evidence of record because nothing in the ‘841 patent suggests the desirability of, or provides an objective reason for, using the recited organic fillers in its elastomeric lining material. Rather, the ‘841 patent only teaches using polyaramide pulp fibers in its elastomeric lining material. Trask also does not suggest the desirability of, or provide an objective reason for, using the recited organic fillers in an insulation material. While Trask teaches that polyphenylene sulfide is a flame retardant, Trask also teaches that polyphenylene sulfide and the other flame retardants do not provide ideal properties and must be combined as separate layers in a panel. Trask at column 3, lines 26-54.

The ‘431 patent is also believed not to suggest the desirability of such a combination to create an insulation material for a rocket motor. As noted by the Examiner, the ‘431 patent

describes the use of tackifiers and plasticizers as well as crosslinking agents and antioxidants. Office Action, mailed April 25, 2006, at page 5. As such, it is believed that neither the '841 patent, the '431 patent, nor Trask suggest the desirability of, or provide an objective reason for, using organic filler materials of claim 7 in an insulation material for a rocket motor.

As the cited references do not teach or suggest all of the limitations of claim 7 and do not provide a motivation to combine to produce the claimed invention, the applicant respectfully asserts that the obviousness rejection is improper and should be withdrawn.

Claim 8 is allowable, *inter alia*, as depending from an allowable base claim.

Since independent claim 14, as amended herein, recites substantially the same limitations as have been discussed hereinabove with respect to claim 7, claim 14 is allowable for substantially the same reasons as claim 7.

Claim 15 and 20 are allowable, *inter alia*, as depending from an allowable base claim.

Obviousness Rejection Based on U.S. Patent No. 4,501,841 to Herring in view of U.S. Patent No. 4,246,359 to Whelan

Claims 7, 14 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring (U.S. Patent No. 4,501,841) in view of Whelan (U.S. Patent No. 4,246,359) (hereinafter "Whelan"). Applicant respectfully traverses this rejection, as hereinafter set forth.

The teachings of the '841 patent are as previously described.

The Examiner, at page 6 of the Office Action mailed April 25, 2006, asserts that Whelan describes "a flame retardant for hydrocarbon diene rubbers comprising a synergistic combination of a halogen containing compound such as PVC and polyvinylidene chloride, alumina trihydrate, and an iron oxide." The Examiner further asserts that Whelan discloses that "the halogen-containing organic compounds may be non-polymeric or polymeric, including chorine containing polymers." *Id.* at pages 6-7. Last, the Examiner asserts that Whelan describes that "the selection of the appropriate halogen containing organic compound should be consistent with the target physical properties of the finished composition." *Id.* at page 7.

The applicant respectfully asserts that the cited references do not teach or suggest all of the limitations of independent claim 7, as amended herein, because references neither teach nor

suggest an “insulation material consisting of a low-density ethylene propylene diene monomer polymer, at least one flame-retardant, at least one curing agent, an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide, melamine, and a homopolymer of vinylidene chloride, and at least one additive selected from the group consisting of at least one antioxidant, at least one cure accelerator, at least one cure activator, at least one tackifier, and at least one plasticizer.” Instead, the elastomeric lining materials of the ‘841 patent are believed to include a crosslinked elastomer polymer, polyaramide pulp fibers, *and inorganic particulates*. The ‘841 patent at column 2, lines 15-22. As the ‘841 patent teaches the use of inorganic particulates, the ‘841 patent does not teach or suggest a material that “consists of” the components recited in claim 7. Further, Whelan describes compositions including alumina trihydrate and iron oxide. Whelan at column 1, lines 42-45; columns 3, line 57 through column 4, line 8. As the combination of the ‘841 patent and Whelan teach the use of inorganic particulates, alumina trihydrate, and iron oxide to form an insulation material, the combination of the ‘841 patent and Whelan does not teach or suggest a material that “consists of” the components recited in claim 7.

As such, the references when combined do not teach or suggest a material that “consists of” the components recited in claim 7.

Claim 8 is allowable, *inter alia*, as depending from an allowable base claim.

Since independent claim 14, as amended herein, recites substantially the same limitations as have been discussed hereinabove with respect to claim 7, claim 14 is allowable for substantially the same reasons as claim 7.

Claim 15 and 20 are allowable, *inter alia*, as depending from an allowable base claim.

Obviousness Rejection Based on U.S. Patent No. 4,501,841 to Herring in view of U.S. Patent No. 4,246,359 to Whelan and further in view of U.S. Patent No. 4,878,431 to Herring

Claims 7, 14 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring (U.S. Patent No. 4,501,841) in view of Whelan (U.S. Patent No. 4,246,359) and further in view of Herring (U.S. Patent No. 4,878,431). Applicant respectfully traverses this rejection, as hereinafter set forth.

The teachings of the ‘841 patent, Whelan, and the ‘431 patent are as previously described.

The applicant respectfully asserts that the cited references do not teach or suggest all of the limitations of independent claim 7, as amended herein, because the references neither teach nor suggest an “insulation material consisting of a low-density ethylene propylene diene monomer polymer, at least one flame-retardant, at least one curing agent, an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide, melamine, and a homopolymer of vinylidene chloride, and at least one additive selected from the group consisting of at least one antioxidant, at least one cure accelerator, at least one cure activator, at least one tackifier, and at least one plasticizer.” Instead, the elastomeric lining materials of the ‘841 patent are believed to include a crosslinked elastomer polymer, polyaramide pulp fibers, *and inorganic particulates*. The ‘841 patent at column 2, lines 15-22. As the ‘841 patent teaches the use of inorganic particulates, the ‘841 patent does not teach or suggest a material that “consists of” the components recited in claim 7. Further, Whelan describes compositions including alumina trihydrate and iron oxide. Whelan at column 1, lines 42-45; columns 3, line 57 through column 4, line 8. As the combination of the ‘841 patent and Whelan teach the use of inorganic particulates, alumina trihydrate, and iron oxide to form an insulation material, the combination of the ‘841 patent and Whelan does not teach or suggest a material that “consists of” the components recited in claim 7.

Further, it is believed that the ‘431 patent does not teach or suggest the removal or exclusion of the inorganic particulates, alumina trihydrate, and iron oxide. As such, the references when combined do not teach or suggest a material that “consists of” the components recited in claim 7.

Claim 8 is allowable, *inter alia*, as depending from an allowable base claim.

Since independent claim 14, as amended herein, recites substantially the same limitations as have been discussed hereinabove with respect to claim 7, claim 14 is allowable for substantially the same reasons as claim 7.

Claims 15 and 20 are allowable, *inter alia*, as depending from an allowable base claim.

CONCLUSION

Claims 7, 8, 14, 15 and 20 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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Date: July 25, 2006
JAW/dlm:slm

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